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Cornelius Neufeld,
Operations Manager,
NatureFresh Farms

READY TO GROW

Automated workcell helps greenhouse operator achieve end-of-line packaging perfection to keep up with growing demand for its premium tomatoes

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GROWING GAINS

A turnkey packaging automation system helps fast-growing greenhouse operator keep up with healthy market demand for its premium fresh tomatoes

BY GEORGE GUIDONI, EDITOR
PHOTOS BY SARAH NICHOLS

Growing healthy, tasty natural products consumers can't seem to get enough of is every farmer's dream.

And for leading Canadian greenhouse operator **NatureFresh Farms**, living the proverbial American dream has been an exciting and exhilarating ride ever since the Leamington, Ont.-based company made a momentous decision to expand its operations into the nearby U.S. state of Ohio back in 2015.

"I just love doing what I do here," says Cornelius Neufeld, operations manager of the company's Ohio business who originally joined NatureFresh at its Leamington home base about eight years ago.

"I oversee the production, maintenance and all the critical function with the help of four managers who report directly to me," says Neufeld, who leads a close-knit team of 175 dedicated full-time staff employed at the state-of-the-art, 45-acre greenhouse complex in the village of Delta, located in the Fulton County in Ohio's northwest

While Neufeld may not be able to spend as much time with family and friends as he used to while working in Leamington, "I was very eager to make the most of this unique opportunity to grow myself professionally within the company and within the industry at large.

"We don't just grow produce here—we also grow people," Neufeld told Canadian Packaging in a recent interview from his Delta location, where NatureFresh produces premium quality **TOMZ** brand of bite-sized snacking tomatoes, medium-sized TOV



NatureFresh Farms operations manager Cornelius Neufeld strikes a happy pose with a freshly-filled pack of TOMZ brand specialty tomatoes harvested at the company's state-of-the-art greenhouse operation in Delta, Ohio, which has been recently upgraded with a fully-automatic EndFlex Top Load Modular Cell system (background) to enable smooth and swift packaging of the company's premium-quality tomatoes inside top-sealed plastic trays for extended shelf-life and maximum store-shelf shelf impact.





(tomatoes-on-the-vine), and large-sized beefsteak tomatoes on a year-round basis using HPS (high-pressure sodium) lighting to harvest premium-quality product with outstanding flavor and taste profile.

Operating on a one-shift, six-days-a-week schedule running between 45 to 55 hours per week, the Delta greenhouse was originally conceived as a base to provide American retail customers consumers with locally-grown fresh produce, Neufeld explains, as part of the larger consumer trend to locally-sourced foodstuffs across the U.S.

“We selected Ohio as a strategic location that would enable us to serve a large consumer base with the reduced number ‘food miles’ required to ship the product to the points-of-sale,” says Neufeld, noting the Delta greenhouse serves retail customers in major centers from Chicago and Cleveland all the way to the U.S. East Coast.

According to NatureFresh, tomatoes grown at the Delta greenhouse can reach over 55 million consumers within a five-hour trucking radius.

As Neufeld relates, the sheer size of the U.S. market prompted NatureFresh to quickly expand the original 15-acre Delta greenhouse to its current 45-acre size within a space of a year, while equipping it with the most advanced greenhouse technologies out in the marketplace.

“Everything here is state-of-the-art,” Neufeld extols, saying the Delta operation currently has capacity to ship two million cases of fresh tomatoes per year.

“We use diffused glass for the roofing and walls to ensure the produce does not get scolded in the heat of the summer season; two energy screens, including a blackout curtain and an energy curtain; an advanced dehumidification system; and HPS lights to enable us to grow during the winter months.”

The climate-controlled facility maintains an average temperature of 16°C during night time and about 23°C during the day to provide optimal condition to grow its non-GMO tomatoes, which are planted in ground-up coconut husks for optimal water and nutrient retention.

As Neufeld explains, greenhouse-grown tomatoes offer numerous advantages over the field-grown varieties—especially in terms of product consistency.

“We can offer unbeatable consistency because we only harvest ripe tomatoes on a daily basis, so that consumers get the same flavor every time they eat one of our tomatoes.

“We control the nutrients and the temperature to not only attain optimal flavor but also to provide much longer shelf-life,” says Neufeld, citing minimal three-week shelf-life for Delta-grow tomatoes under optimal storage conditions.

Neufeld adds the greenhouse regularly sends product samples to outside laboratories each week for full product analysis in order to determine optimal nutrient levels for the latest crop of tomatoes.

As for getting the products out to market in the most efficient and cost-effective manner, Neufeld credits Nature Fresh Farms management for pursuing a very proactive capital investment strategy that has made the Delta facility’s warehousing and packaging area “a highly automated” operation.

“The actual harvesting itself is very much a manual process,” says Neufeld, estimating that about 100 people do the daily pruning and cropping on the plants, with harvesting done twice a week.

“We use [building] automation to control the lighting, temperature and humidity levels,” he says,



A bird’s-eye view of the busy production line housed at the NatureFresh Farms’ Delta facility that boasts capacity to produce and ship about two million cases of various varieties of tomatoes per year to costumers across most of the eastern half of the U.S.



Manufactured by EndFlex LLC in Miami, Fla., the Top Load Modular Cell system is a fully-automtic workcell that enables the Delta plant to pack its fresh premium tomatoes inside plastic trays or bowls at robust throughput rates of about 60 packs per minute.



Also supplied by the Paxiom Group, the fully-automatic 14-bucket PrimoCombo multihead weighscale provides for exceptionally accurate and consistent filling of plastic packages conveyed directly underneath its exit chute at rates of up to 60 packs per minute.

“but we are constantly looking for ways to automate further.

“We are currently considering installing a robotic harvester for picking our cherry tomatoes,” he confides, “which would definitely improve our throughput.

“But our warehousing and packaging area is extremely automated,” says Neufeld, citing labor shortage and cost control as prime reasons for the company’s emphasis on continuous process automation.

According to Neufeld, a recent installation of a fully-automated workcell manufactured by the Miami, Fla.-based end-of-line packaging machine-builder **EndFlex LLC** has played a key and central role in automating the Delta location’s packaging operations.

Formerly operating under the moniker **Eagle Packaging Machinery LLC**, EndFlex is one of several sister-companies operating under the corporate umbrella of the Montreal-headquartered **Paxiom Group** of companies, whose other well-known manufacturing brands include **WeighPack Systems** (horizontal bagging machinery); **CombiScale** (multihead weighers); **VH Vertical Packaging** (vertical form/fill/seal machinery); and **ValTara** (flowwrapping equipment).

With the benefit of vast experience across several critical packaging machine categories, Paxiom was able to supply NatureFresh with a complete turnkey packaging system comprising a towering 14-bucket PrimoCombi multihead weigher, product transfer conveyors, and a **Top Load Modular Cell** incorporating a high-performance pick-and-place robot to pack tomatoes inside one-pound pint clamshells and two-pound plastic bowls, which are top-sealed with a layer of vent-holed plastic film and placed inside a corrugated shipping box or an RPC (reusable plastic container) tray.

“All customers are different,” Neufeld says, “but we typically put 15 pints to a box or 12 two-pound bowls to a box for most of them.”

Neufeld credits Paxiom Group’s territory manager Marc McGlogan for convincing NatureFresh Farms management about the viability of the **Top Load Modular Cell** technology for the company’s packaging operations.

“Mark made a very effective presentation at our Leamington facility and we also got some really good feedback from people already using such a system,” Neufeld



A close-up view of the food-grade plastic bucket elevator used to transport pre-measured quantities of fresh tomatoes upwards to provide a continuous product flow for the fully-automatic PrimoCombo multihead weighscale that dispenses the tomatoes in their final packages.

recalls, “so we felt fairly confident about the benefits it could provide for us.

“Prior to purchasing the Top Load Modular Cell systems, our team hand-packed each clam shell individually into the box,” he recalls, “which was a pretty labor- and time-intensive process.

“This system has proved far more efficient and productive for our operation,” says Neufeld, praising its exceptional weighing accuracy and speedy throughput of about 60 packs per minute.

“We actually ended up buying two [Top Load Modular Cell] systems from them—one for the Leamington operation and one for the Delta plant,” he relates.

Installed at the Delta greenhouse last October, the robotic **Top Load Modular Cell** is a fully-enclosed, high-speed pick-and-place station that can be easily combined with synchronized conveying systems and incorporated into existing end-of-line packing processes, according to Paxiom.

Equipped to pick and place various finished package types—including bags, wrapped products, rigid containers, cartons, and widgets—into both cases and trays, it incorporates a packing unit engineered to operate using either vacuum or mechanical pick-up.

Using servo drives, the modular and highly flexible cell ensures gentle product handling, along with the ability to orient logos and to pack multiple layers of product into the erected case or tray.

Moreover, the cell’s output can be easily expanded with an addition of more pick-and-place arms into the assembly, Neufeld explains, as opposed to installing more machinery onto the floor.

Says Neufeld: “With this system, we have been able to utilize the employees who were previously doing the hand-packing work on a different line, thereby using their skillsets more efficiently.

“We have also been able to reduce cost,” says Neufeld, citing the machine’s reliable continuous operation that is only limited by brief downtime breaks to accommodate product changeovers.

“We have to make adjustments to suit different types of packages or different-sized boxes for the different retailers,” he explains, “so we typically have to shut it down for



Corrugated shipping containers filled with plastic pints of TOMZ brand specialty tomatoes packed inside the EndFlex Top Load Modular Cell systems (background) await their turn to be moved to the plant's shipping area for prompt delivery to customers.



A closeup of the high-speed label applicator just outside of the Top Load Modular Cell system primed to label finished packs.



The Top Load Modular Cell system supplied to the Delta plant by EndFlex employs two soft-grip suction grippers on the end of the robotic arms to ensure swift and gentle handling and packaging of the top-sealed plastic tomato pints, with the system's modular design also offering the option of adding up to eight more robotic arms into the workcell to increase throughput rates.

five minutes or so to adjust the guide-rails to fit the box size and to make the corresponding programming changes.

"But all in all, it's an absolutely excellent machine for running a consistent product stream for long periods of time."

"Some days are better than others," he confides, "and having to accommodate eight to 10 product changeovers over a shift will have an impact on productivity levels.

"But on days when we have a steady product flow, it really works like a charm."

Neufeld says he was highly impressed with seeing the entire workcell being installed and set up to run within one working day, which was followed by three days of informative hands-on training.

"It was a very smooth installation," says Neufeld, praising the EndFlex staff for their exceptionally professional service and follow-up support.

"They made an outstanding effort to make all the controls on the machine as user-friendly as possible,"

Neufeld remarks. "It arrived completely pre-assembled for the most part, so it was largely a matter of plugging it in and letting it roll.

"I have worked with many different packaging machines in the past, and I have rarely come across one as user-friendly and as reliable as this EndFlex system.

"I am very happy with this purchase," says Neufeld, adding that the Delta operation will definitely be looking to add more automated packaging equipment to its operations in the future.

"We are already working on plans to build an on-site distribution center," he confides, "as well as doubling the size of the facility to about 90 acres, so further automation is very much in the cards.

"For example, we are looking at adding an automated palletizing system for our beefsteak and specialty tomato lines, among other things."

This is all sweet music to the years of Paxiom Group's vice-president Nicholas Taraborelli.

"We really appreciate our relationship with Nature-Fresh Farms," Taraborelli states. "Right from the begin-

ning, they have been incredibly collaborative to ensure the right solution was delivered the first time.

"We are very proud that they chose Paxiom and have entrusted two of our manufacturing companies, WeighPack Systems (tomato container filling system) and EndFlex (end-of-line-automation) to package their products."

With further expansion of Leamington operations already under way and setting up shop in Mexico also part of the company's longer-term strategic plans, Nature-Fresh Farms is very much aware of its CSR (corporate social responsibility) obligations and public expectations, according to Neufeld.

"We are committed to providing our customers with exceptional quality and incredible flavor, but we are also passionate about consumer education, exploring and implementing sustainable business practices, and community involvement," Neufeld states.

"Our sustainability efforts have had a huge impact on how our business operates and how we approach new opportunities.

"We pride ourselves on using essential resources efficiently and responsibly when growing our products."

Says Neufeld: "Our team also regularly donates excess food from our farms to food rescue organizations to help reduce our food waste footprint, and we have also been exploring more sustainable packaging options to reduce consumer waste.

"In addition to everything we do at an operations level, we are constantly creating engaging content shared on our website and social media platforms that provides our fans with tips and educational pieces to help them be more sustainable at home "We are passionate about sustainability," Neufeld concludes, "and we don't merely talk the talk—we really walk the walk." 🍁

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